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Digital Grain Moisture Tester

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DIGITAL GRAIN MOISTURE TESTER

Submitted to:

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by

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EET 491

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ABSTRACT

The digital grain moisture tester is a device which determines the moisture content of a sample of grain. The readout is expressed as a percentage by weight. That is, the weight of water contained in the sample divided by the weight of the sample times 100.

Basically, the digital grain moisture tester is a type of capacitance meter. It has been found that certain electrical properties of grain (among them dielectric constant) depend largely upon its moisture content. A sample cell, which is actually a large parallel plate capacitor, has been constructed to hold a grain sample. Since the dielectric constant of grain varies with its moisture content, the capacitance of the cell also varies. The capacitance of this cell determines the frequency of a TTL oscillator composed of three NAND gates. Completely digital circuitry is then used to convert this signal into a readout which is equivalent to the grain moisture content.